



Navigation System Simulation Model

Start Date: Jun 2005

POC:

**Projected
End Date:** Sep 2009

[POC](#)

Problem Addressed:

The Waterways Analysis Model is currently the most procedurally developed lock simulation model used by the Corps. However, the WAM is limited in several regards. It is a difficult model to use, which is being addressed by another NETS project (WAM BPP). More importantly, the WAM is written in a proprietary language which makes it difficult to understand and revise; it is not well suited to analysis of a system of locks; it is not well suited for analysis of shipper and carrier behavior in reaction to disruptive lock closures; it is not well suited for analysis of various traffic management schemes; it does not include engineering reliability modules; and it cannot optimize navigation system investments and management actions.

Objective:

This effort will develop an entirely new system simulation and optimization model that builds upon the capabilities of WAM and addresses the shortcomings identified above. NaSS is intended to be the most advanced navigation system simulation tool available to the Corps and general public.

Benefits:

The work effort will lead to better decisions regarding navigation system improvements and management through the use of a model that better simulates real world operations and optimizes potential investments and traffic management actions.

Status:

In Progress. Prototyping, Genetic Algorithm modification, NaSS LPMS schema creation, Prototype BasinSym, and Phase 1 Detailed Lock Model coding is complete. In FY08 the team will focus on enhancing the BasinSym model, implementing statistically generated shipment lists, and completing development of the Detailed Lock Model. A GUI will be developed, equipment reservoirs will be implemented, and WCSC data will be added to the DAPP. Enhanced outputs, and the notion of alternative improvement projects will also be implemented.

Contract Data:

A1310; 130465,
W1010, W1030,
C3300

Progress:

[Paper by Mark Lisney, September 2005](#)
(43 KB, pdf)

[Design Document by Dr. Richard M. Males, Feb 5, 2006](#) (457 KB, pdf)

[Report by Paul Schonfeld, Shiaaulir Wang, Apr 17, 2006](#) (494 KB, pdf)

Products (Bookshelf/Toolbox):

[Report by Dr. Richard Males, Jul 12, 2006](#)
(787 KB, pdf)

[Report by Shiaaulir Wang and Paul Schonfeld, Nov 7, 2006](#) (596 KB, pdf)



[Design Document Review Comment by Design Document Reviewers. May 1,2006](#) (236 KB, pdf)

[DD Comments and Responses by Various NaSS Team Members. Jul 27,2006](#) (261 KB, pdf)

[Announcement by NETS Team. Feb 12,2007](#) (15 KB, pdf)

[Report by Shiaaulir Wang, Ning Yang, Paul Schonfeld. Jun 18,2007](#) (677 KB, pdf)

[Update by Mark Lisney. Sep 18,2007](#) (51 KB, pdf)

[Presentation by Mark Lisney. Sep 20,2007](#) (463 KB, ppt)

[Presentations and MFR by NaSS Team. Dec 12,2007](#) (8.0 MB, zip)

[Instructions by Mark Lisney. Feb 20,2008](#) (1.2 MB, pdf)

[Software by Mark Lisney. Feb 20,2008](#) (12 KB, zip)

[Software by Mark Lisney. Feb 20,2008](#) (265 KB, zip)

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